

✓

L2 ANSWER 6 OF 17 CA COPYRIGHT 2004 ACS on STN  
 AN 133:21363 CA  
 ED Entered STN: 30 Jun 2000  
 TI Sulfate-free fast rigid hydraulic binder compositions for shotcrete  
 IN Mitkova, Darina  
 PA Dyckerhoff A.-G., Germany  
 SO Ger. Offen., 4 pp.  
 CODEN: GWXXBX  
 DT Patent  
 LA German  
 IC ICM C04B028-02  
 ICS C04B024-28; C04B022-10; C04B022-06  
 CC 58-3 (Cement, Concrete, and Related Building Materials)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19854477	A1	20000531	DE 1998-19854477	19981125
	DE 19854477	C2	20020314		
	EP 1004555	A1	20000531	EP 1999-117565	19990906
	EP 1004555	B1	20011205		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO					
	AT 210104	E	20011215	AT 1999-117565	19990906
	ES 2167980	T3	20020516	ES 1999-117565	19990906
	PT 1004555	T	20020531	PT 1999-117565	19990906
	NO 9905188	A	20000526	NO 1999-5188	19991025
	SK 283902	B6	20040406	SK 1999-1558	19991112
PRAI	DE 1998-19854477	A	19981125		

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DE 19854477	ICM	C04B028-02
	ICS	C04B024-28; C04B022-10; C04B022-06

AB The fast rigid compns. consist of sulfate-free mineral binder (typically, fine **portland cement** clinker, metallurgical sand, micro-silica, metakaolinite, zeolite, Ca-silicate, Ca-aluminate, and/or lime, ) and 0.25-2 wt.% of sulfonate-free **superplasticizer** esp. polycarboxylate having mol. wt. 5000-50000 g/mol. Optionally, the binders comprise setting accelerators such as alkali hydroxides, alkali-earth hydroxides, alkali carbonates or bicarbonates, alkali silicates, Ca(NO<sub>3</sub>)<sub>2</sub>, Ca(HCOO)<sub>2</sub>, alkali sulfates and/or pyrosulfates, and/or amines.

ST fast rigid sulfate free hydraulic binder shotcrete

IT Binders

(S-free; sulfur-free fast rigid hydraulic binders for shotcrete)

- Portland cement  
 - Sand  
 - microsilica  
 - metakaolinite clay  
 - Superplasticizer

can be thicker

1,2,4,5,9-11